

Claims

- [c1] 1.A vehicle occupant restraint system comprising:
a seat having a seat cushion, a first side, and a second side;
a lap belt extending between a first point adjacent the first side of the seat and
a second point adjacent the second side of the seat, the lap belt passing above
the seat cushion between the first and second points; and
at least one belt guide disposed adjacent the first side of the seat and engaging
the lap belt, the belt guide having a first position relative to the seat wherein it
holds the lap belt in a comfort configuration, and the belt guide movable to a
second position relatively rearward with respect to the first position wherein it
holds the lap belt in a crash restraint configuration.
- [c2] 2.The vehicle occupant restraint system according to claim 1 further comprising
a restraints control module operative to command the belt guide to move from
the first position to the second position.
- [c3] 3. The vehicle occupant restraint system according to claim 1 further
comprising a track disposed adjacent the first side of the seat, the belt guide
slidably engaged with the track and movable therealong between the first and
second positions.
- [c4] 4.The vehicle occupant restraint system according to claim 1 further comprising
an actuator for moving the belt guide between the first and second positions.
- [c5] 5.The vehicle occupant restraint system according to claim 4 wherein the
actuator is powered by a pyrotechnic device.
- [c6] 6.The vehicle occupant restraint system according to claim 4 wherein the
actuator is powered by compressed gas.
- [c7] 7.The vehicle occupant restraint system according to claim 4 wherein the
actuator is powered by a mechanical spring.
- [c8] 8.The vehicle occupant restraint system according to claim 4 wherein the
actuator is electrically powered.

- [c9] 9.The vehicle occupant restraint system according to claim 1 wherein the belt guide is attached to the seat when in the first position and is detached from the seat to allow movement to the second position.
- [c10] 10.The vehicle occupant restraint system according to claim 1 further comprising a belt pretensioner disposed adjacent the seat and engaging at least one end of the lap belt, the pretensioner operative to tighten the lap belt around an occupant of the seat.
- [c11] 11.The vehicle occupant restraint system according to claim 1 further comprising at least one shoulder belt.
- [c12] 12.The vehicle occupant restraint system according to claim 1 wherein the lap belt when in the crash restraint configuration extends generally directly between a hip of an occupant of the seat and the first point, and when in the comfort configuration extends generally vertically
- 13.The vehicle occupant restraint system according to claim 1 wherein the lap belt comprises a first segment extending from a first retraction point adjacent the first side of the seat cushion and a second lap belt segment extending from a second retraction point adjacent the second side of the seat cushion, the first and second segments detachably connectable with one another at a center latching point above the seat cushion, and each of the first and second segments having a belt guide movable between the first position and the second position.
- [c13] 14.A vehicle occupant restraint system comprising:
a seat having a seat cushion, a first side, and a second side;
a first lap belt segment extending from a first retraction point adjacent the first side of the seat;
a second lap belt segment extending from a second retraction point adjacent the second side of the seat and detachably connectable with the first lap belt segment at a center latching point above the seat cushion in order to be fastened around a seat occupant; and
first and second belt guides disposed adjacent the first and second sides of the seat respectively and engaging the first and second lap belt segments

respectively, each belt guide having a first position forward of its respective retraction point wherein it engages its respective lap belt segment and causes the lap belt segment to assume a comfort configuration wherein the lap belt segment is relatively vertical as it extends toward the center latching point from the belt guide, and each belt guide movable to a second position rearward from the first position and allowing its respective lap belt segment to assume a crash restraint configuration wherein the lap belt extends in an upward and forward orientation toward the center latching point from the belt guide.

- [c14] 15.The vehicle occupant restraint system according to claim 14 further comprising at least one belt pretensioner operative with at least one of the first and the second lap belt segments.
- [c15] 16.The vehicle occupant restraint system according to claim 14 further comprising a restraints control module operative to command the belt guide to move from the first position to the second position.
- [c16] 17.The vehicle occupant restraint system according to claim 14 further comprising at least one shoulder belt.
- [c17] 18.A method of restraining an occupant in a seat of a motor vehicle having a seat and a lap belt having a first end fixed adjacent a first side of the seat and a second point fixed adjacent a second side of the seat, the method comprising the steps of:
providing at least one belt guide disposed adjacent the first side of the seat and engaging the lap belt, the belt guide having a first position relative to the seat wherein it holds the lap belt in a comfort configuration and a second position relatively rearward with respect to the first position wherein it holds the lap belt in a crash restraint configuration; and
moving the belt guide from the first position to the second position in response to a signal from a restraints control module.
- [c18] 19.The method according to claim 18 wherein the step of moving the belt guide comprises sliding the belt guide along a track disposed adjacent the first side of the seat.

[c19] 20. he method according to claim 18 wherein the step of moving the belt guide comprises detaching the belt guide from the seat.